

QB4
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UNITED STATES NAVAL OBSERVATORY
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U. S. Naval Observatory, Washington 25, D. C.

December 14, 1953

POSITIONS, AREAS, AND COUNTS OF SUNSPOTS
AUGUST-SEPTEMBER-OCTOBER, 1953

By Winifred Sawtell

These results are based upon measurements made at the Naval Observatory on plates secured either there or at the Mt. Wilson Observatory. The symbols used for the entries in the successive columns are as follows:

U.T., the epoch of observation in Universal Time.

No., the identifying number of the group assigned by Mt. Wilson.

Δl , the heliographic difference in longitude from the central meridian, measured positive to the west.

φ , the heliographic latitude, measured positive to the north.

ρ , the heliocentric angular distance from the line joining the centers of the Earth and Sun.

A , the true area of the umbra plus penumbra, expressed in millionths of the visible hemisphere.

s , the number of spots.

An asterisk means that no Mt. Wilson number was assigned. Plates secured at the Naval Observatory are indicated by N, and those at Mt. Wilson by M. The plate quality, which follows, is indicated by:

1, Poor; 2, Fair; 3, Good; 4, Very Good; 5, Excellent.

The following five quantities are listed successively at the end of each day, and give for that day:

1. The total number of groups, g .
2. The longitude of the central meridian, L_0 .
3. The latitude of the center of the disc, B_0 .
4. The total value of A .
5. The total value of s .

The mean daily area and the mean relative sunspot number, $r=10g+s$ are given at the end of the month.

These results are a continuation of those published in the *Monthly Weather Review* from February 1, 1927 to December 31, 1947.

AUGUST

U.T.	No.	Δl	φ	ρ	A	s	U.T.	No.	Δl	φ	ρ	A	s
		°	°	°					°	°	°		
1.602 N-2					0	0	11138	+23	+16		25	6	1
	(0) (212)	(+6)			0	0	(3) (104)	(+6)				235	13
2.676 N-3	11138	-78	+15	78	97	1	10.631 N-3	11140	-58	+9	58	170	1
	(1) (197)	(+6)			97	1		11139	+23	+16	25	16	1
3.670 N-3	11138	-65	+16	66	133	1		11139	+24	+17	26	24	1
	11138	-60	+16	61	48	3		11139	+25	+17	27	16	1
	(1) (184)	(+6)			181	4		11139	+26	+16	28	16	1
4.576 N-4	11138	-52	+17	53	61	3		11139	+26	+14	27	73	3
	11138	-51	+16	52	24	3		11138	+34	+16	35	48	2
	11138	-46	+16	47	12	1		11138	+35	+17	36	6	1
	11138	-45	+17	47	16	3		11138	+36	+15	36	12	1
	(1) (172)	(+6)			113	10		11138	+38	+17	40	24	1
5.574 N-4	11138	-39	+14	40	32	1		11138	+38	+16	40	24	3
	11138	-38	+13	39	6	1		11141	+50	+11	50	16	1
	11138	-32	+14	33	6	1		11141	+52	+12	52	16	2
	(1) (159)	(+6)			44	3	(4) (92)	(+6)				461	19
6.792 N-1	11138	-23	+17	26	16	1	11.640 N-2	11142	-78	+11	78	97	1
	(1) (143)	(+6)			16	1		11142	-72	+12	72	194	2
7.606 N-1	11138	-6	+15	11	16	1		11143	-71	-6	68	97	1
	11138	-4	+15	10	16	1		11140	-45	+9	45	170	1
	11138	+2	+15	9	12	1		11139	+37	+16	38	73	1
	(1) (132)	(+6)			44	3		11139	+42	+15	43	80	1
8.807 N-4	11140	-85	+11	85	194	1		11138	+47	+16	49	121	3
	11139	+1	+15	9	16	1		11138	+53	+15	53	121	2
	11139	+2	+16	10	12	1		11141	+66	+11	66	24	1
	11139	+3	+15	10	12	1	(6) (79)	(+6)				977	13
	11138	+8	+15	13	12	1	12.733 N-2	11143	-67	-4	68	24	2
	(3) (116)	(+6)			246	5		11143	-57	-5	60	85	1
9.717 N-4	11140	-70	+10	70	145	1		11142	-65	+15	64	48	1
	11139	+12	+14	14	24	4		11142	-64	+12	64	194	1
	11139	+13	+16	16	16	2		11142	-58	+12	58	145	2
	11139	+14	+14	16	6	1		11142	-57	+12	57	218	1
	11139	+15	+13	17	32	3		11140	-30	+10	30	133	1
	11139	+15	+15	17	6	1		11139	+52	+16	52	24	2
								11139	+56	+15	56	73	1
								11138	+61	+15	61	73	1
								11138	+67	+14	68	48	1
							(5) (64)	(+7)				1065	14
							13.602 N-5	11143	-56	-5	58	24	1
								11143	-55	-4	56	12	1
								11143	-46	-6	48	97	1
								11142	-54	+13	54	12	2
								11142	-54	+14	54	12	2
								11142	-53	+12	53	145	3
								11142	-53	+14	53	6	2
								11142	-52	+11	52	24	1

AUGUST

U. T.	No.	Δl	φ	ρ	A	s	U. T.	No.	Δl	φ	ρ	A	s	
		$^{\circ}$	$^{\circ}$	$^{\circ}$					$^{\circ}$	$^{\circ}$	$^{\circ}$			
	11142	-51	+12	51	48	2		11140	+23	+ 9	24	97	1	
	11142	-51	+14	51	24	1		(3)	(12)	(+7)		993	15	
	11142	-48	+11	48	16	1								
	11142	-47	+12	47	73	4								
	11142	-45	+11	45	73	2	17.792	11142	+ 4	+15	8	6	1	
	11142	-44	+12	44	255	1	N-3	11142	+ 4	+11	6	36	2	
	11140	-21	+10	21	16	3		11142	+ 4	+12	6	24	1	
	11140	-18	+ 9	19	121	1		11142	+ 4	+14	8	12	1	
	11139	+68	+15	69	12	3		11142	+ 9	+10	10	6	1	
	11138	+80	+16	80	24	1		11142	+13	+11	13	412	1	
	(5)	(53)	(+7)		994	32		11143	+12	- 5	17	36	1	
								11140	+38	+ 8	38	73	1	
								(3)	(357)	(+7)		605	9	
14.607	11143	-41	- 5	43	12	1								
M-5	11143	-35	- 6	37	6	3	18.678	11142	+14	+11	15	6	1	
	11143	-34	- 4	36	6	2	N-3	11142	+14	+12	15	6	1	
	11143	-31	- 5	34	73	2		11142	+16	+11	17	6	1	
	11142	-43	+15	44	6	1		11142	+24	+11	24	412	1	
	11142	-39	+13	39	24	4		11143	+23	- 6	27	36	1	
	11142	-38	+14	38	48	9		11140	+49	+ 8	49	48	1	
	11142	-38	+12	38	121	3		(3)	(346)	(+7)		514	6	
	11142	-37	+14	37	12	6	19.701	11143	+37	- 6	40	24	1	
	11142	-36	+13	36	48	10	N-2	11142	+38	+11	38	412	1	
	11142	-33	+11	33	12	4		11140	+63	+ 7	63	24	1	
	11142	-33	+13	33	16	8		(3)	(332)	(+7)		460	3	
	11142	-30	+13	31	267	7	20.637	11142	+49	+11	49	412	1	
	11140	- 4	+ 9	6	97	1	N-3	11143	+49	- 7	51	16	1	
	11139	+86	+16	86	12	1		(2)	(320)	(+7)		428	2	
	(4)	(40)	(+7)		760	62	21.631	11142	+65	+11	65	412	1	
15.637	11142	-25	+12	26	121	1	N-2	(1)	(307)	(+7)		412	1	
N-4	11142	-25	+14	27	121	2		22.633	11143	+75	- 6	76	24	1
	11142	-24	+13	25	24	1		N-2	11142	+77	+11	77	388	1
	11142	-23	+14	24	24	3		(2)	(294)	(+7)		412	2	
	11142	-23	+12	24	48	3	23.580	11145	-76	- 9	77	12	1	
	11142	-22	+11	23	12	1	M-4	(1)	(281)	(+7)		12	1	
	11142	-21	+11	22	6	1		24.633				0	0	
	11142	-19	+12	20	24	3	N-4	(0)	(267)	(+7)		0	0	
	11142	-18	+10	18	36	1								
	11142	-16	+12	17	339	1								
	11143	-18	- 5	23	48	1								
	11140	+ 7	+ 9	8	16	2								
	11140	+ 9	+ 9	10	145	1								
	(3)	(26)	(+7)		964	21								
16.669	11142	-12	+14	14	73	3								
N-2	11142	-11	+11	12	109	2								
	11142	- 9	+13	11	48	2								
	11142	- 9	+10	10	36	1								
	11142	- 8	+11	10	97	2								
	11142	- 4	+ 9	5	36	1								
	11142	- 3	+11	6	436	2								
	11143	- 4	- 5	13	61	1								

AUGUST

U.T.	No.	Δl	φ	ρ	A	s	U.T.	No.	Δl	φ	ρ	A	s
25,629 N-3		°	°	°	0	0	29,709 N-2		°	°	°	0	0
	(0) (254)	(+7)			0	0		(0) (200)	(+7)			0	0
26,610 N-2					0	0	30,704 M-1					0	0
	(0) (241)	(+7)			0	0		(0) (187)	(+7)			0	0
27,690 N-3					0	0	31,637 N-4					0	0
	(0) (227)	(+7)			0	0		(0) (175)	(+7)			0	0
28,633 N-4					0	0							
	(0) (214)	(+7)			0	0							

Mean for 31 days
 $A = 324, s = 26.1$

SEPTEMBER

U. T.	No.	Δl	φ	ρ	A	s	U. T.	No.	Δl	φ	ρ	A	s
1.633	11147	-47	+18	48	6	1	11.705	11149	-17	+12	18	194	1
N-4	11146	-36	+12	36	6	1	N-4	11152	-14	+16	17	32	1
	11146	-35	+13	36	6	1		(2)	(28)	(+7)		226	2
	(2)	(161)	(+7)		18	3	12.760	11154	-75	-11	76	24	1
2.640	11146	-18	+13	19	12	1	N-4	11149	-3	+13	7	194	1
N-3	11146	-16	+13	17	12	1		11152	+1	+14	7	16	1
	(1)	(148)	(+7)		24	2		11151	+17	+12	18	32	1
3.676	11146	-3	+12	6	6	1		11151	+20	+12	21	24	1
N-3								(4)	(14)	(+7)		290	5
	(1)	(134)	(+7)		6	1	13.645	11154	-64	-13	67	24	1
4.635	11146	+8	+12	10	6	1	N-3	11154	-61	-12	64	24	1
N-3								11154	-59	-11	62	73	1
	(1)	(122)	(+7)		6	1		11149	+8	+12	10	218	1
5.660	11146	+21	+11	22	6	1		11152	+9	+16	13	12	1
N-3	11146	+22	+12	23	6	1		(3)	(3)	(+7)		351	5
	11146	+23	+11	23	12	1	14.637	11155	-67	-8	70	6	2
	(1)	(108)	(+7)		24	3	N-3	11154	-50	-11	53	32	2
6.611	11149	-87	+14	87	194	1		11154	-49	-13	53	73	4
M-4	11148	-83	-5	83	145	1		11154	-48	-12	52	24	1
	11146	+33	+13	34	6	2		11154	-45	-11	48	24	3
	(3)	(96)	(+7)		345	4		11154	-44	-11	47	36	2
7.635	11149	-73	+13	74	315	1		11149	+23	+12	24	218	1
N-3	11148	-64	-5	65	12	2		11156	+60	+12	60	6	1
	(*)	+63	+15	63	24	1		(4)	(350)	(+7)		419	16
	(3)	(82)	(+7)		351	4	15.628	11157	-75	+5	75	97	1
8.631	11149	-57	+13	57	194	1	N-4	11155	-57	-9	61	12	1
N-3	11151	-38	+12	38	16	2		11154	-37	-12	42	12	2
	11150	+67	+10	68	24	2		11154	-37	-13	43	24	3
	(3)	(69)	(+7)		234	5		11154	-34	-12	39	48	1
9.645	11149	-46	+14	46	242	1		11154	-32	-12	37	48	2
N-3	11150	+78	+11	79	12	1		11149	+36	+12	36	194	1
	(2)	(56)	(+7)		254	2		(4)	(337)	(+7)		435	11
10.634	11149	-32	+13	33	242	1	16.644	11157	-60	+6	60	97	1
N-3	11152	-31	+18	33	48	2	N-3	11155	-44	-9	47	12	1
	11152	-29	+16	31	61	1		11154	-24	-12	31	12	1
	(2)	(43)	(+7)		351	4		11154	-24	-13	31	73	2
								11154	-20	-12	27	48	1
								11154	-18	-11	26	24	2
								11154	-18	-12	26	73	2
								11154	-17	-12	26	12	2
								11149	+48	+12	48	194	1
								(4)	(323)	(+7)		545	13
							17.672	11157	-45	+6	45	97	1

SEPTEMBER

Mean for 30 days
 $A=181, r=26.2$

OCTOBER

U.T.	No.	Δl	φ	ρ	A	s	U.T.	No.	Δl	φ	ρ	A	s
		$^{\circ}$	$^{\circ}$	$^{\circ}$					$^{\circ}$	$^{\circ}$	$^{\circ}$		
1,758 N-3					0	0	N-2						
	(0) (124)	(+7)			0	0		(1) (351)	(+6)			12	1
2,671 N-2					0	0	12,572 N-2	11162	+11	-9	18	12	1
	(0) (112)	(+7)			0	0		11162	+12	-9	19	6	2
3,708 N-2	11160	+40	-14	45	6	2		11161	+50	-7	53	16	1
	11160	+42	-13	47	12	3		11161	+54	-7	56	12	1
	(1) (98)	(+7)			18	5		(2) (341)	(+6)			46	5
4,733 N-3	11160	+54	-16	58	24	2	13,611 N-2	11162	+23	-7	26	61	2
	(1) (84)	(+7)			24	2		11162	+23	-9	27	48	1
5,656 N-3	11161	-46	-7	49	6	1		11162	+25	-8	29	16	1
	(1) (72)	(+6)			6	1		11162	+26	-8	31	24	1
6,677 M-4	11161	-33	-6	35	97	3		11161	+66	-7	68	6	1
	11161	-30	-5	33	6	1		11161	+68	-8	70	16	1
	11161	-29	-6	33	12	1		(2) (327)	(+6)			171	7
	11161	-28	-5	31	48	3	14,616 N-2	11162	+34	-8	37	24	1
	(1) (59)	(+6)			163	8		11162	+35	-9	38	16	1
7,658 N-3	11161	-20	-6	24	61	3		11162	+35	-7	37	24	2
	11161	-16	-5	20	12	1		11162	+36	-7	39	36	3
	11161	-14	-5	18	16	1		11162	+38	-9	42	97	5
	(1) (46)	(+6)			89	5		11162	+41	-10	44	48	1
8,750 N-2	11161	-6	-6	14	73	2		11162	+42	-10	45	73	3
	11161	+2	-5	12	48	1		(1) (314)	(+6)			318	16
	(1) (31)	(+6)			121	3	15,625 N-3	11162	+47	-8	51	73	2
9,733 N-2	11161	+8	-6	16	36	3		11162	+48	-7	51	24	2
	11161	+16	-5	20	24	1		11162	+49	-9	52	24	4
	(1) (20)	(+6)			60	4		11162	+52	-8	54	97	2
10,835 N-3					0	0		11162	+54	-9	57	73	2
	(0) (4)	(+6)			0	0		11162	+54	-7	56	24	1
11,780	11161	+38	-7	41	12	1		11162	+56	-10	58	24	1
								11162	+57	-10	60	170	2
								(1) (301)	(+6)			509	16
							16,625 N-3	11162	+63	-7	65	61	1
								11162	+68	-7	70	6	1
								11162	+68	-10	71	6	1
								11162	+69	-10	72	145	1
								(1) (288)	(+6)			218	4
							17,602 N-3	11162	+75	-7	77	6	1
								11162	+80	-9	80	97	1
								(1) (275)	(+6)			103	2
							18,740	(*)	-63	+11	63	6	1

OCTOBER

Mean for 31 days, $A = 66$, $r = 10.1$